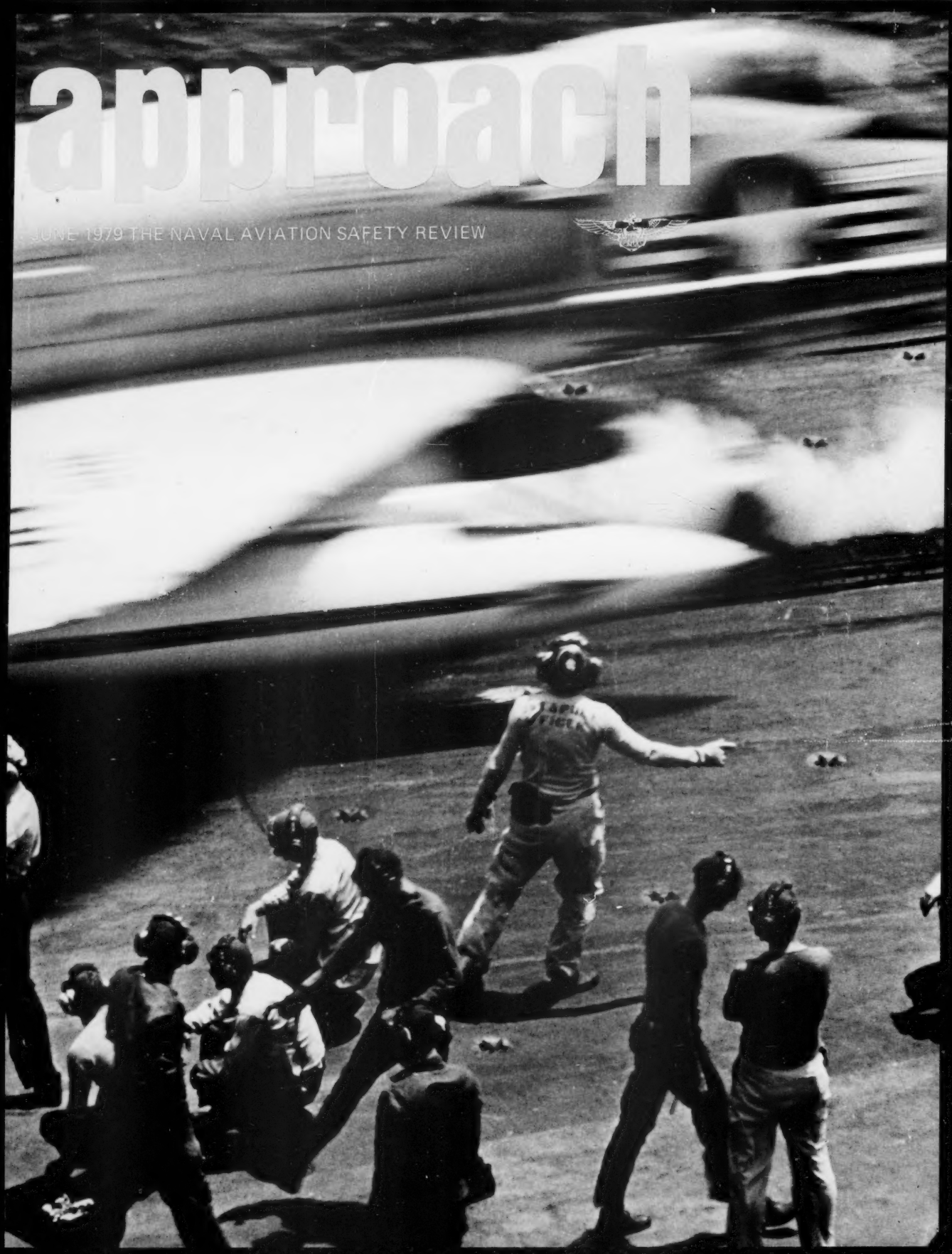
approach

JUNE 1979 THE NAVAL AVIATION SAFETY REVIEW



"Why not? Everyone else does."

THE other evening, while visiting a friend, I declined a toddy. No particular reason, I just didn't want one right then. A funny look came over my friend's face and he said, "You quit?" "No," I replied, "There are times when I don't drink." "Why not?" he asked, "Everyone else does." That remark set me to thinking about safety. Time and again, we hear that phrase, "Why not? Everyone else does." Normally, it means that some "turkey" is about to do something that isn't in the book! It can be anything from the pilot who compromises his personal survival gear in some manner, to the "tech" who takes a piece of GSE without checking it out and determining its condition prior to use. I'd venture to say that we fall back on that "good" excuse practically every day.

The day after my encounter over the drink, a pickup truck passed me in excess of 55 mph, on the right-hand shoulder of the road, about a half-mile from the gate. It so happened we wound up in the same parking lot, so I asked the guy what prompted him to take such an obvious risk of life and limb. You guessed his answer right away, didn't you?

I would cite a thousand examples, but why bore you when you already know them so well. After all, you used one or two today, right? Skippers, safety officers, etc., right down to the lowest level, should keep an eye out for those insidious things we do that put us on the tightrope just because "everyone else" does it. Sooner or later, you're going to be the victim of a mishap that occurred because you put the book aside and ignored the rules. I've decided to go for longevity myself, so don't expect me to say, "Why not? Everyone else does."

By CDR Bill Shufelt, USN
AIMD Officer, NAS Norfolk, VA

Vol. 24 No. 12

approach

NAVAIR 00-75-510

This month's cover is a photo taken in 1966 by JO1 Falk. It is an A-4C on a cat shot off the USS ENTERPRISE.

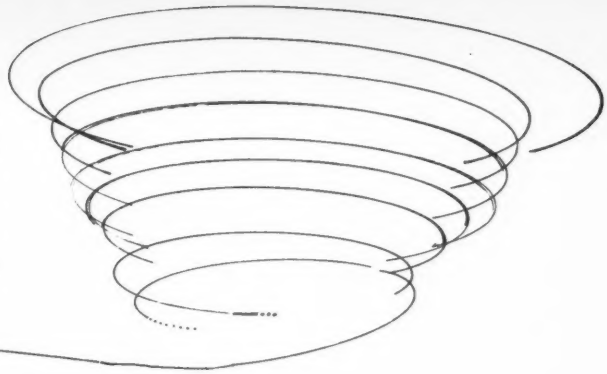
The other side of the "bag"

By CDR R. B. "Brev" Moore

AS one who is closing out a tour in an instrument training squadron, I would like to relate some of the things I have learned and observed as an instrument instructor for naval aviators flying their annual instrument checkflights and for RAG FRPs undergoing their instrument training. Some of these items seem either to be misunderstood or unappreciated in what can be very demanding flying, fraught with all the insidious hazards associated with naval aviation.

Missed Approach Point. One thing that surprised me once I began instructing was the location of the missed approach point for nonprecision approaches. (It's easier to see outside the bag!) Chances are if you shoot a perfect approach but then break out right at minimums *you may not be able to safely land the aircraft!* You simply will be too high, too far down the runway, too wide, or all three. Couple this with the possibility of a wet runway (if not ice and/or snow) and chances of making a safe landing are even less. It's important that we realize this! So what do you do? If you don't have circling minimums, you have to execute

a missed approach. This relative dislocation of the MAP in regards to being set up for a safe landing is something I had not realized before, and I have found many other pilots don't either. Study the approach plate as part of your planning and be mentally prepared to take it around; otherwise you might foolishly make a go for it. If fuel is critical – plan to arrest. Advanced planning is still your best bet.



Circling minimums. On the subject of circling minimums, let me bring out a couple of important matters. A *circling approach is risky* if weather is right at minimums. Consider the situation: you shoot a TACAN/VOR/ADF approach, level off at MDA (which is usually about 500 feet AGL), and drive it into 1½ miles. You are busy flying instruments and, if single piloted, looking for the runway environment. You're just about to execute the missed approach when you see the runway lights. Whew, you've made it! Not so fast! Now you have to maneuver the aircraft below the clouds while keeping the runway in sight. "Descent below the established MDA or DH is not authorized during an approach unless the aircraft is in a position from which a normal approach to the runway of intended landing can be made, and adequate visual reference to required visual cues can be maintained" (DOD, Flip, General Planning). That concrete runway seems to blend in with the haze and fog; you bank the aircraft while straining to keep the field in sight. Let's pause to look at the hazards. With the aircraft in a turn and your concentration out of the cockpit, it's a situation where you could fly into the ground. You have to keep so close to the runway that you set yourself up high, close-in, and/or fast, making the subsequent landing more risky. Further, few people realize that straight-in approaches are set up for 1.3Vs. When on a circling approach, aircraft speed is necessarily faster due to angle-of-bank required. Commercial air carriers *are required* to make allowances for this increased airspeed by using the minimums of the next higher level category aircraft – if their maneuvering speed so dictates. What does this mean to you? It means you will have to fly an even more wrapped-up approach which, in turn, will require even more power as you are trying to remain within sight of the runway. Ever try a circling approach with 1.5-2 miles radius to turn? Think of your normal VMC pattern off the 180. Try it on a nice day sometime; keep your altitude at circling minimums and, while you're doing it, consider that you would probably be NORDO since you'd otherwise be on a PAR or ASR approach. (Does a good WX brief including winds make sense?) When you roll out on final you're probably going to be *fast* due to excess power required to maintain angle-of-bank for the turn. What am I saying? *Use the minimums of the next higher category for your aircraft!* This will provide you with a better margin of safety for the circling approach.

ASR approaches. For ASR approaches, minimums are not listed on the approach plate. You must look them up in the Enroute Supplement. At the very least, ask the controller. Be certain to specify the category of your aircraft! Do not drive it in hoping that you'll break out or that the controller will tell you when to execute the MA. Personally, I write down PAR and ASR mins on the applicable approach plates with a highly visible felt tip pen (not red). Note: the visibility restriction is from the *approach* end of the runway, *not* from the touchdown point as with a PAR.

What about obstruction clearance, rate of descent, etc? Essentially, our squadron teaches pilots to descend expeditiously to the MDA, then drive the aircraft into the missed approach point straight and level. Expeditiously does not mean an excessive rate of descent which, for tactical aircraft, is considered to be greater than 1000 fpm. The reason for the expeditious descent is that you might get out of IMC conditions earlier and be able to better set yourself up for the landing. (Remember that discussion about breaking out right at minimums?) Also, and this is

mostly applicable for single-piloted aircraft, if you level off at the MDA and fly straight and level into the MAP, it requires much less concentration on the flight instruments, which in turn will enable you to spend more time outside the cockpit looking for the runway environment. That, after all, is what it's all about. For an ASR approach, from the point where you begin your descent, you are guaranteed an obstruction clearance of 250 feet at least 2½ miles either side of your approach course. Your recommended altitudes are given every mile and are planned at a 300 feet per mile descent rate. At a groundspeed of 2¼ miles/minute (120 knots) that equates to a no-wind descent of 635 fpm for a 3-degree glide slope. Therefore, a descent rate of 800-1000 fpm will get you safely to MDA and allow some time to drive straight and level.

PAR approaches. Did I mention a PAR? Do you realize how low 200/½ is, much less 100/¼? Suppose you check your altimeter and you have a 40-foot error? Also, suppose you lose 30 feet at your MAP – that leaves you 30 feet of clearance from the ground. My observation is that 200 feet is *low* – don't press your minimums by a foot! And what about minimums? Old hands, remember when you used to have to look in the Enroute Supplement to get your PAR minimums, just as we have to do for ASR minimums now? Some nice guy put the PAR minimums on the approach plate; however, they are *only for the runway for which the approach is published.* Many runways have higher minimums, even if the minimums depicted on the approach plate are 100/¼ for *that* particular runway. Also, don't assume the controller will call your decision height, especially if you are single piloted and published minimums are 100/¼ – in which case he'll be calling the lower minimums. You can ask the controller to call *your* minimums if you are a single-piloted aircraft.

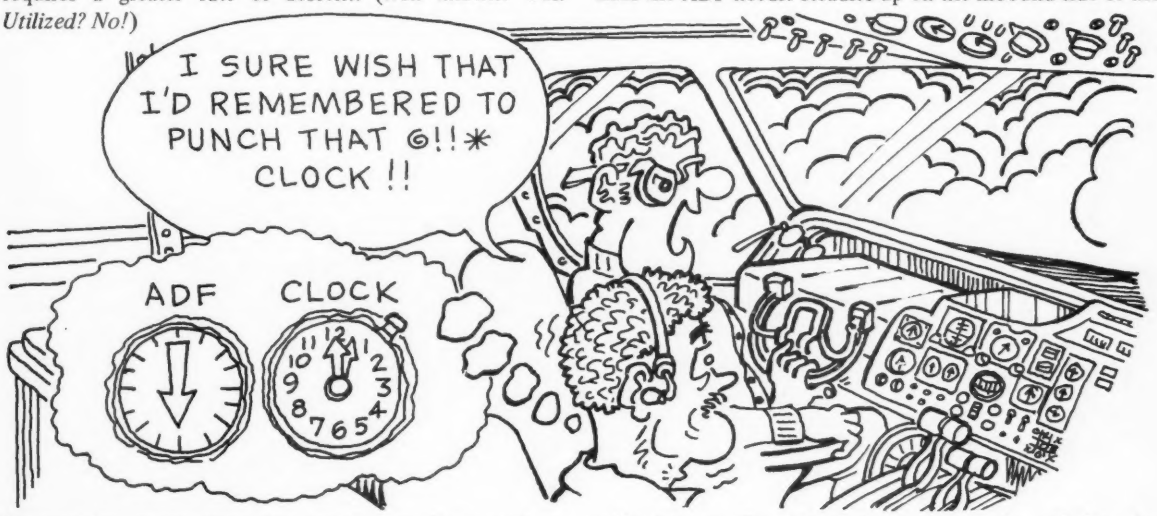
No-gyro PARS. Not many pilots have been "fortunate" enough to fly an actual no-gyro approach (i.e., directional indicator failure – not standby gyro/partial panel) in actual instrument conditions. We usually get hit with a practice no-gyro approach on our annual check and it's basically no sweat, right? You merely fly SRTs (standard rate turns) until on final and then one-half SRTs. WRONG! I can say without exaggeration that 80 percent of practice, no-gyro approaches end with this statement by the controller, "Too far right/left of course; if runway not in sight, execute a missed approach." Usually it's at that point the instructor pilot takes over the aircraft and lands. But, if the situation is for real, who wants to "take 'er around" in bad weather with no gyro? Fuel's probably getting low as well.

Why are most approaches waved off? First of all, it's a lag-response type of approach. The controller gives you a turn and then stops it based on a clock. In a one-half SRT you should turn 90 degrees in 2 minutes. Assuming you execute the turn precisely at one-half SR, and stop it perfectly when told, the controller now has to observe your flightpath on the scope to see the results of the turn. He may not have turned you enough, or maybe you didn't begin the turn when directed, didn't turn at the correct angle-of-bank, etc., etc. In the meantime, you're descending on glidepath. Obviously, however, you're getting a lot less glide slope information than normal because of the turn instructions. If all this doesn't make it difficult enough, the limits within which you must remain, to avoid being waved off, are very narrow. Essentially, if you are outside what is an imaginary extension of each side of the runway, on the final portion of your approach, you will be waved off. I have been amazed to see aircraft being waved off at a position from which a landing can easily and safely be made. However, the criteria by which a controller must abide is very precise.

While discussing no-gyros, when's the last time you practiced one? How do you expect controllers to remain proficient or to become trained? When you do practice

one, take the no-gyro off the downwind leg vice on final. For a controller (and pilot) to turn correctly for two 90-degree turns, so as to be lined up on final, is difficult and not often achieved very easily. Incidentally, do you check your compass alignment prior to penetration? Consider a no-gyro ASR with recommended altitudes on final. This type of approach also places a lot of demand on the pilot and controller.

If there is a common discrepancy concerning approaches, it would be failure to check the wind. It goes in one ear and out the other. Besides the fact that it might exceed your crosswind limitations and affect your landing rollout, it will affect your rate of descent. This already varies depending on the field to which you are shooting your approach. (What's the angle of the glide slope? What rate of descent does it require? Check your Enroute Supplement and Approach Plate books.) If you have a headwind, you have to reduce your rate of descent, and a tailwind requires a greater rate of descent. (*Well known? Yes. Utilized? No!*)



Nonprecision approaches. One major error I've noted on TACAN, nonprecision approaches is laxity in maintaining azimuth control. Since the primary concern is rate of descent and altitude minimums, pilots seem satisfied to give or take five radials if on final. Even though I can't argue with the priority, effort should be placed toward flying the required radial as closely as possible. If not done, the correction for lineup with the runway will become increasingly difficult. One other common error is using the mileage listed at the bottom of your approach plate as the *visibility minimums* for the MAP. On a TACAN approach you use the TACAN DME, depicted on the *profile view* of the approach plate, to conduct the missed approach.

Remember the old NDB approach? This is one approach that I find largely ignored today. True, there are not many such facilities left, but when would you shoot such an approach for real? Essentially it would be when you have no TACAN or VOR, are NORDO (or PAR/ASR facilities are down), and it's bad weather. Isn't that one heck of a time to shoot your first ADF approach in a year, two years, five? So, I've always tried to occasionally get one for practice. Some of the results are unreal! Any resemblance to the depicted approach on the plate and that flown appears to be only coincidental! (Not to be a hypocrite, I was once probably one of the worst!) The most common mistake seems to be not getting station passage at high station, which results in the aircraft being way out in left field after the procedure turn. Inbound toward the station, the pilot under instruction can't believe such a large correction is required, so he compromises, wanders around, or both. Then upon flying over low station (and usually forgetting to punch that *%@+$%&† clock!), the pilot under the bag *does not take out the correction* but waits until the ADF needle steadies up on the inbound side of the radio beacon. By then he's usually so far off that the correction can't be made and the duty runway is considerably displaced, if in sight at all. Once you fly over the low station, you know where you are. Unless there's a significant wind consideration, punch the clock, take out the previous heading correction, and begin the rate of descent. Only practice will keep your technique honed.

Minimums in general. Did you realize that parallel runways might have different PAR/ASR minimums? If the runways are side-by-side, and the thresholds are alongside one another, the minimums are likely to be identical (Runway 18R/L–NAS Cecil) or only a couple feet different (Runway 9R/L–NAS Cecil) but, if the runways are staggered and/or have different approach light setups, there can be considerable differences.

Alternate airfields. I suppose nothing is more misunderstood than this requirement, and I will not belabor OPNAV 3710.7 in this already long article. Suffice it to say, I've seen aircraft taking off on days where there were no legal alternates within hundreds of miles! Either those pilots were headed on a cross-country, they had a *lot* of fuel to go to an alternate, or *they were illegal.* Remember, for filing criteria, an aircraft with only one radio is considered as a single-piloted aircraft. Also remember, you are expected to use the minimums for the runway that can be expected to be the duty runway on the basis of the forecast weather. Obviously, the category to which the aircraft belongs also affects minimum requirements.

Weather. In this modern age we have all but done away with face-to-face briefings with aerologists, through use of weathervision. *Use caution*! A glance at the TV usually *does not include temporary conditions* (which must be considered when determining alternate airfield requirements). Furthermore, the weather listed is usually not the forecast weather (except perhaps for Homebase) upon which alternate criteria must be based.

NAVAID identification. Time and time again I have witnessed pilots dial in the wrong TACAN station for an approach. I remember being impressed some years ago by reading in a safety publication about a naval aviator dialing in the wrong TACAN station and subsequently shooting an approach into the infamous "cumulo granitus" clouds. It was a two-seated aircraft and, if I remember correctly, there was supposedly a mixup as to who had control of the TACAN. Whatever the problem, the wrong TACAN for an approach won't work! Always identify the station audibly before using it for navigation. If you're fortunate enough to have a copilot/RIO/BN, don't accept the statement, "I've got TACAN channel No. 75 dialed in," but rather, "I've got TACAN channel No. 75, Cherry Point, dialed in *with a good* ident." If cockpit configuration warrants, add the phrase, "front/aft cockpit has control." That should eliminate any confusion.

Voice procedures. During my short span as a naval aviator (15 years), I have seen radar coverage *and control* pick up significantly, and voice reports have increased proportionately. What has bothered me, other than continual use of Guard by all controlling agencies as well as the services, is the unprofessionalism demonstrated by fellow aviators when opening their mouths. Whether calling aerology on the weathervision, changing a flight plan, reporting icing, or talking with ATC or METRO, I am often embarrassed by the unprofessional manner in which it is done. Usually, 30 seconds of thought beforehand will be all that is necessary to make a professional transmission. Figure out the zulu time beforehand rather than trying to figure it out while transmitting. Look at the Enroute Supplement ahead of time for reporting format. If you talk to METRO en route, take the time to make your best observation of the weather before you call them. Then when METRO asks for a PIREP, you can give one in a concise, proper, useful manner. Always contact METRO along your route on a cross-country to get a more recent update of weather. Do so in time to take corrective measures. The time to decide whether you should head to your alternate might be right away! No sense in risking a low fuel state, compounded by bad weather, when you arrive at your destination.

Complacency. I mentioned the improved/greater coverage of the radar environment. Don't assume that because you're under radar contact that you really are! I've been given PAR approaches when ATC thought I was another aircraft. I was lowered into the boonies; nowhere was there a runway. The instances of pilots hitting mountains under radar control – ship to shore – is enough to make you: (1) check your station identification; (2) know your surroundings; and (3) use other navaids as backups.

Know your area, assume the worst, and "cover your six." Just because you've been operating around the ship recently, in all sorts of bad weather and hairy situations, don't let the complacency of "nothing higher than sea level" catch up to you. Sicily, Sardinia, Crete, and other islands have already caught their share of unsuspecting "flyboys."

Crew coordination. I have had pilots tell me that they let the RIO/BN/copilot read the approach criteria off the approach plate *while they don't even look at it*! Here's an accident waiting to happen. It's great to have someone to help you but, if you're not each cross-checking each other, the human element of error will catch up with you; you might as well have only one person aboard.

In conclusion, planning, knowledge, awareness, proficiency, and continual alertness are required to get you on and off the deck safely. I sincerely hope this article may help you do just that. ◄

Aw ★%&★!●

THE driver of a multimotored aircraft taxied out to take off on a night mission. The pilot in command swung onto the duty runway and turned off his taxi lights as the tower cleared him to go. He wanted to use all of the runway, so he back-taxied about 300 feet and then made a left 180 to line up with the centerline.

Instead of lining up with the reflective center stripe, he goofed and lined up on the starboard edge of the runway. He mistook the edge lights for the runway centerline lights. After 900 feet of takeoff roll, the aircraft zapped a 3 by 3 concrete conduit, blowing the starboard tire, and starting a right drift. The starboard mainmount and prop hit the E28 arresting gear motor/drum 1500 feet down the runway. The aircraft drifted further right and came to rest 90 degrees off runway heading in soft dirt and grass.

The aircraft was badly damaged, but no one aboard was injured. Atmospheric conditions played no part in this ding. Winds were calm, the runway was dry, and visibility was excellent. It was a simple case of pilot disorientation on the field; his eyes played a dirty trick on him. No one will fault the pilot for wanting to use all of the runway but, when he back-taxied to an unlighted part of the concrete, he built a hazardous situation into his lineup maneuver. He wasn't at max gross, didn't *need* the extra runway, and the error in judgment resulted in a mishap. Maybe that's why they call taxi lights "taxi lights"!

APPROACH (USPS 016-510) is a monthly publication published by Commander, Naval Safety Center, Norfolk, VA 23511. Subscription price is $15.00 per year; $3.75 additional for foreign mailing. Subscription requests should be directed to: Superintendent of Documents, Government Printing Office, Washington, DC 20402. Controlled circulation postage paid at Norfolk, VA.

LIBERTY

By CDR D. S. Angelo

WE in the business of aviation safety are all for "liberty" and plenty of it. After all, who deserves it more? We wish we had more money and time for it. But, if you've been finding yourself coming back to work to get some rest, you are not understanding the purpose of liberty.

The purpose of liberty is *rest and relaxation.* Now, I know you liberty hounds will have a few other "purposes," but we consider our "purpose" as the legitimate one, so bear with us. This is a safety publication, so we are going to talk about that aspect.

Well, nobody can give 100 percent all the time, so why belabor it? Here's why! The aviation game is fraught with day-to-day monotony, repetition, sustained physical and mental effort, emotional involvement, high levels of responsibility, and frequent changes of environment and working hours. Fatigue soon gets the grip on us and we need rest to rejuvenate our energy. Rest can come in many forms, but here we are referring to relaxation away from the job, and sleep.

Relaxation and sleep need to be balanced, with emphasis on getting enough sleep. Most people need 6-8 hours of sleep at night, in order to be at their best physically and mentally the next day. Now, if your idea of "liberty" and rest and relaxation is to hit the ville at 1700, hit the sack at 0200, and return to work or to the cockpit at 0600, your idea is wrong. You're short on sleep and, by definition, rest. If you are the type that drinks alcohol while on liberty, you may still be inebriated or, little better, hungover.

OPNAVINST 3710.7J (NATOPS) states that any form of alcohol intake within 12 hours prior to flight planning is prohibited. It further recommends 8 hours of sleep as adequate.

It takes 1 hour for your body to assimilate and get rid of three-quarters of an ounce of booze, which explains the 12-hour rule as the time needed for you to arrive sober for work. Since each and every one of you who work in, on, or around airplanes, or for that matter any mechanical object that can hurt you, need to be 100 percent alert on the job, please understand that the 12-hour rule applies to **YOU.** An accident's cause can sometimes be laid squarely on one person's doorstep but, more often than not, an accident is the result of a series of small errors which ultimately led to a destroyed aircraft, or other piece of expensive equipment, with a body thrown in for good measure.

So, let's think about our next liberty. If you're going to drink alcohol – drink in moderation, and knock it off in time to observe the 12-hour rule. Get the proper 8 hours of sleep. Moderate drinking, maximum rest, and full attention to your jobs the next day could make the difference between whether you go home as a passenger or as cargo.

Reprinted from *SAFETY FIRST*
First Marine Aircraft Wing

COURTING DISASTER

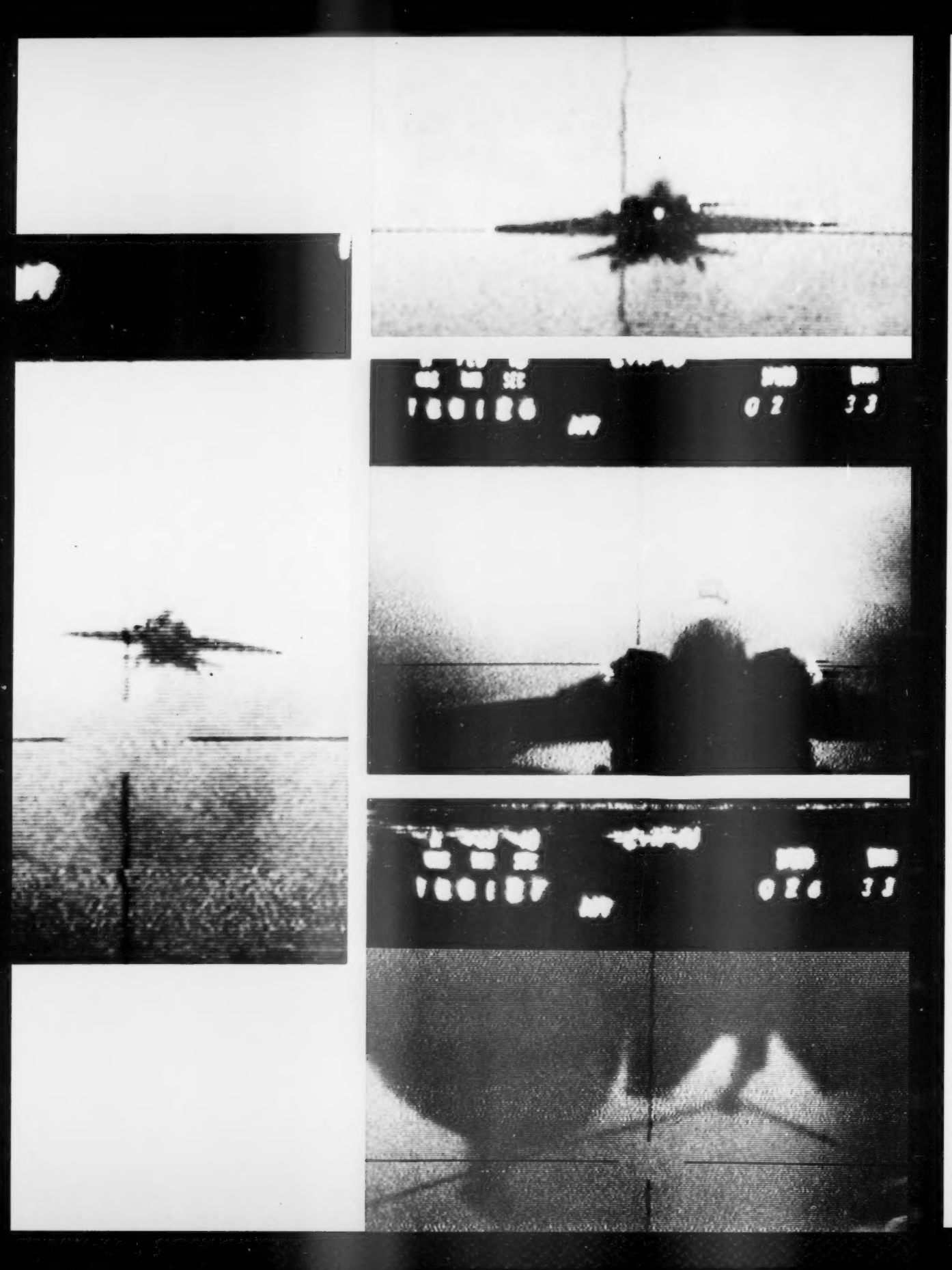
RECENTLY, an Air National Guard maintenanceman was ingested into the intake of an A-7 and suffered fatal injuries. A review of past mishap reports shows that the Navy has had six such incidents, the last occurring in 1973. This number does not include the numerous "close calls" which have been experienced, which are the frequent subject of readyroom and maintenance shop sea stories throughout the Fleet.

The hazard of the *Corsair* intake duct has been a stalwart in the light attack wing corporate memory for years. We learned our lessons the hard way, and they have stuck for several years now. Recent observations at airfields, weapon deployment sites, and onboard ships indicate that the unforgiving hazard of the A-7 intake may be slipping from our memory, and warrant renewed emphasis and concern in this area. These observations, to name a few, include:

- Total disregard of painted hazard zones, by pilots and maintenance personnel, while the aircraft is turning up.
- Skylarking, or simulating being sucked down the intake, while the engine is windmilling after shutdown.
- Nonuse of intake screens while performing maintenance turnups.
- Failing to inform nearby personnel that the engine is to be advanced above idle power.
- Disregard for established safety procedures in general, and lack of common sense.

To continue to accept these poor practices is definitely courting disaster, not only in the A-7 community, but in all jet communities. It's like the railroad crossing adage, "Stop, Look, and Listen!" If you don't heed the warnings, you're going to pay the price, one way or another. Therefore, if we are to maintain the low amount of ground mishaps of this type, a hard, fast, and sure relearning process is in order. Get the word out now!

Adapted from COMLATWING ONE message



Even when you do things right, things can still go wrong. Such was the case of the F-14 pilot and the LSO. They did everything that they were supposed to, but the ship didn't cooperate. Then again, she was at the mercy of an unusual sea state that day.

Ask any Centurion

FOREBALL 200 had returned to the carrier after a successful, yet uneventful, air intercept hop. The weather was somewhat balmy with the temperature near 60°F, scattered to broken clouds at 2000 and 7000 feet, and the winds out of the north at a brisk 35-40 knots. Not bad weather for recovery, but the sea state would pose a definite problem – 10 feet with a 6-second interval. These factors necessitated a Case I MOVLAS recovery. Not the routine recovery, but no great problem for the professional carrier pilot.

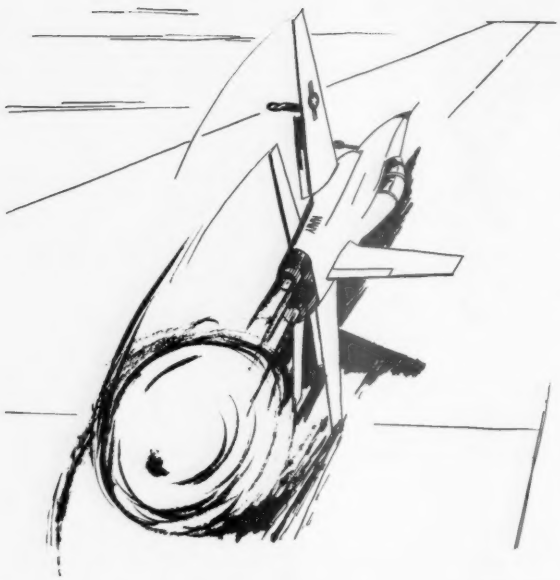
The *Tomcat* was looking good coming down the chute; that was until 5 seconds from touchdown – then the bottom fell out as the deck came up to greet the approaching aircraft. During these 5 seconds, the deck transited from full-up, through full-down, to nearly full-up, at which time the two objects occupied the same place at the same time. Evaluation of the plat tape indicated that the F-14 remained relatively steady, slightly high on glide slope, until approximately 1 second from touchdown. At that point, the aircraft was noticed to develop a rapid sink rate (or closure rate with the rising deck). The fighter touched down in a slightly higher than normal attitude on the mainmounts (which fully compressed) and the ventral fins (which were totalled). Other than two other superficially damaged portions of the aircraft, it remained intact to fly again.

The LSO commented that the pilot "climbed in-close," but corrected properly by reducing power slightly. As the aircraft started down the glide slope, the nose came up, yet was stable and within parameters as it passed through the waveoff point. The *Tomcat* pilot's response to MOVLAS control was average, and his technique was not a cause factor. The LSO was not considered a factor either. He allowed the aircraft to continue because the deck appeared to be full-up just prior to touchdown. The pilot was flying a steady, nonerratic approach and the sink rate was normal as he crossed the ramp. This team had done what was expected of them. But, enter the third factor that could not be controlled – pitching deck.

The aircraft touched down just prior to the deck's final *upward* movement, a distance of some 8-10 feet from its lowest *downward* movement. This distance was just enough to bring the two together, too soon. Although the F-14 came down a little at the ramp, this landing would not have been harder than normal under steady deck conditions. Two additional aircraft blew mainmount tires during this recovery period from harder than normal landings. The culprit in this incident was old *Mother Nature.* She never lets you know exactly how much the deck is going to pitch each time. When confronted with a pitching deck, the teamwork of the pilot-LSO is tested to the hilt and, even when they do it right, things can still go wrong.

Landing aboard carriers is very demanding under ideal conditions, but add adverse weather conditions and a pitching deck – it's a challenge that breeds character and professionalism. In naval aviation, there are no amateurs (that last), particularly on the flattops at sea. Ask any Centurion – they know. ◄

Tower, *speak to me!*



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OUT here in the boondocks, events happen fast, but word from the outside world filters in slowly. I read an article in a recent issue about controllers not passing late weather changes to pilots shooting an approach. I'm going to tell you a story about the lack of information from the tower which contributed, in a large measure, to a fatal accident – and no weather was involved.

We have a variety of aircraft regularly in our traffic pattern, from light *Cessnas* up to 747s and C-5s. Our controllers are sharp guys, and the young ones are well supervised by old heads while they're getting experience. As in most squadrons, there seem to be booboos committed only by one of the best pilots in the outfit, so it happened to us.

It was another monotonously clear day, and winds, although capricious, weren't all that bad. Perhaps there was a spook in charge of events, but, whatever it was, before the day was over, two good pilots were dead.

We have special test work going on all the time, and although it played a small part in the accident, it did not involve a test aircraft. The accident aircraft was being flown by two pilots doing some refresher training.

At this base we are blessed with four runways, not quite 90 degrees apart, but that's close enough. So we don't have to fight landing hot and fast in a 90-degree crosswind. When the wind is 10 knots or less, we always use two runways. Special test flying is performed on the runway closest into the wind, and other flying is performed on whatever runway the tower designates.

This particular day, I had been flying twice. My morning flight was to repeat a previous hop from which data were unreadable. My afternoon flight had involved additional data acquisition. The purpose of this is to let you know I had talked to the tower numerous times and had experienced the winds. The wind had been constant in direction all day, but we told the tower he was putting out bad dope on the velocity. The winds were stronger by at least 10 knots than the tower reported.

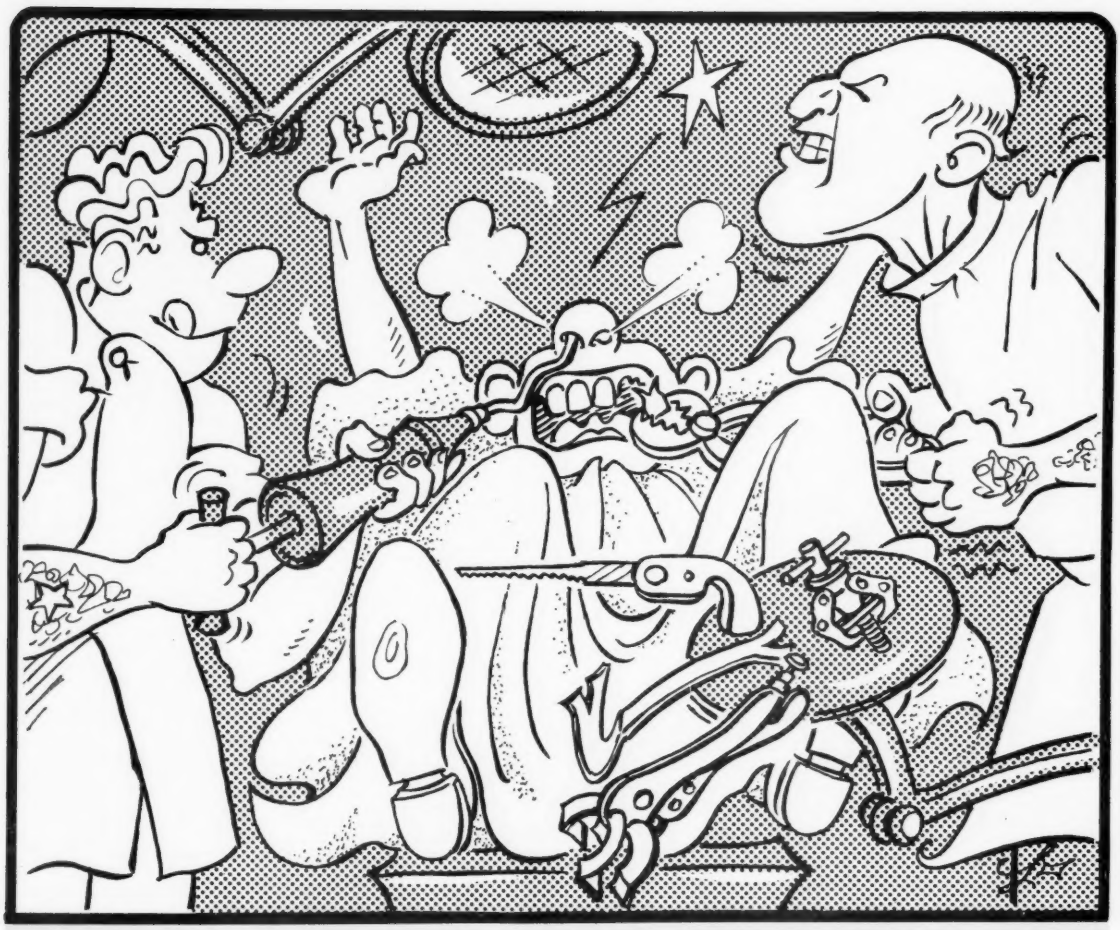
It was midafternoon, and I was observing field operations from a good vantage point. The test work had been completed for the day, and it was time for the tower watch to change. I heard a pilot call in for landing information and the tower cleared him No. 2 following a prop. He was given the off-duty runway in use, but wasn't given any wind information.

I watched as the accident aircraft followed the prop in the pattern and thought to myself the interval between the two wasn't enough. The jet pilot obviously felt the same way and executed a go-around. As he turned base for Runway 5 on the second pass, he was given winds of 330/5. I couldn't help thinking that some people never get the word. It had been over 4 hours since pilots had taken the tower to task for putting out incorrect wind velocity, and Runway 32, into the wind, wasn't busy.

The jet turned in on final, touched down, and rolled straight ahead for several seconds, then rotated to takeoff. My heart jumped to my throat when suddenly the aircraft rolled to about 60 degrees wing down and didn't recover. In a second or two, it was all over. The wing tip dug in, the aircraft crashed and began breaking up right where I could see it.

Later I found out the squadron CO had specifically requested the tower supervisor not to permit the accident aircraft to use any runway but the duty runway. I was curious as to how many other calls had been made to the tower and found out no less than three other aircraft and an LSO had reported higher and gustier winds than the tower was reporting.

Reviewing the circumstances leaves me to believe that tower personnel need to have a quicker reaction time to pilot reports of erroneous wind information. ◄



ACHES AND PAINS

AFTER 30 minutes of flight at FL200, a crewmember of the P-3 indicated numbness in his right jaw. Minutes later, the crewman experienced increasing pain and eventually became incapacitated. The mission was terminated and the aircraft returned to base where the ill crewman was taken to the hospital. The incapacitation was due to an abscessed tooth and acute sinusitis. He recovered and, although no permanent effects occurred, he remained off flight status for approximately 6 weeks.

Aircrews that have attitudes of "Well, it's just a little cold"; "It doesn't ache that bad"; or, "I can hack it, I'll remain at low altitude" when they have minor ailments, ought to talk with the above crewmember. It is quite obvious what would have happened to him if he were a pilot of an A-4 or A-7! Don't take the "Docs" for granted and try to second-guess them. They don't try to second-guess your duties. Maybe it's time to review the physiological effects that medical and dental problems have on the body during flight. ASOs, flight surgeons, and COs: How does your unit stack up on aeromedical problems and knowledge? ◄

CHIP LIGHT?

PILOTS on cross-countries, ferry flights, and detached duty are operating away from the shelter and supervision of Homeplate "honchos." There is a tendency on the part of some pilots to think that under these conditions they have a license to steal – meaning to forget or ignore SOP, take unnecessary risks, and, in the extreme, disregard NATOPS. These are definitely no-nos.

Let's consider the events as they happened to a crew on a cross-country flight. The crew was flying a helicopter and they were nearing their destination after a couple of days of dawn-to-dark flying.

At a point less than 20 miles from their destination, they heard a loud bang and saw the transmission chip light illuminate. The pilot followed procedures and executed a precautionary landing in a farmer's field. That's the last correct thing he did.

After landing, a crewman climbed out of the helo to conduct an external inspection. The pilot remained in the seat, rotors turning. The crewman took a cursory look, returned, and reported no additional external signs which would prevent them from continuing – even though the chip light was still on.

The pilot launched, declared an emergency with the tower at destination and, in a few minutes, made a routine landing. Postflight inspection revealed that four transmission system segment chip lights, located behind the

Believe it!

transmission access panel, were illuminated, and metal chips were found on all the sensors.

What influenced the pilot to throw out NATOPS, ignore SOP, and show a lack of common sense?

- They were less than 20 miles from their destination; surely the helo would stay glued together a few more minutes.
- Many times chip lights illuminate only because there's some fuzz, and not because internal damage is being done – but you don't know until you look.
- A fixed-wing aircraft was inbound to pick up the crew, to take them to another base, as soon as the helicopter landed at destination.
- Sunset had occurred, but there was still twilight for the last 15 miles.
- The crewman didn't *see* anything wrong.
- The pilot wanted a secondary indication that the chip light was for real. *(He already had a secondary indication when the light came on and the loud bang was heard. Obviously he didn't want to believe the light and noise. The visual inspection was made, hoping not to find a third indication. Why the crewman didn't check, and wasn't told to check, the transmission system segment lights we'll never know. – Ed.)*

The crew was flat-out lucky. The trap was set for a catastrophe – one of those unexplained, unknown accidents. Perhaps, had the helicopter crashed, a mishap board member could have found the cause – if there had been enough bits and pieces of wreckage to collect.

There's *something* here for all pilots to consider. When you're away from Homeplate, the CO has designated you as one in whom he has trust and confidence. You have the expertise to operate independently. You have the maturity and knowledge of procedures to handle unusual situations or emergencies.

A cross-country, ferry flight, or independent detachment operation is alleged to be unique. Unique, my six! Sure you're alone, but you wouldn't be if the CO didn't think you could hack it. You are qualified; you're going into strange airports or operating off various decks; you're making decisions normally reserved for upper echelons; you're operating with limited or no command presence, and don't you forget it.

There's no room for complacency, "delta sierra" actions (get-home-itis/flathatting/fuel exhaustion), or loose attitudes. If anything, you are super safe and super cautious to prove to your peers and command that you deserve a man-of-distinction award.

One last thought. For the first time in years, it looks like there are more seats than aviators, and that the pilot community will be this way for a while. Guard those seats jealously and don't jeopardize them in any way. ◄

How about a little bridge?

(a piece of fiction?)

MICHAEL was a well-respected IP. He and I were both first tours; he a pilot and I an NFO. We'd been flying the P-3 for about 2 years and had both managed to make all our designations early. We were considered a couple of the best – first and second tours alike.

We were both scheduled for flights the next day. Michael had a pilot trainer and I a tactics trainer just off the coast. Our wives had decided that we would all get together and play a little bridge that night; a little midweek fun.

Donna and I got to their house about 2000, just as Michael and Janet were putting their son and daughter to bed. Donna and I proceeded into the kitchen to "whip up" the first batch of daiquiris.

By 2130 we had finished one rubber, not to mention the four pitchers of daiquiris. We were all feeling pretty good. We decided to play one more rubber and call it quits. After all, Michael and I had a preflight at 0700 the next morning.

Donna and Janet were making "little comments" to us about getting too drunk to get up and go flying. We explained to them that we both knew exactly what we were doing and that it was SOP for the other crewmembers to take up the slack for anyone who showed up a little "under the weather." Besides that, Michael and I were good. We could perform better than most in the aircraft at well under our peak output.

At 2300, one rubber and two more pitchers later, we decided it was time to "call it a night." Michael would catch a ride with me in the morning; pickup time was 0615.

We weren't feeling too bad the next morning. We got in a little early and went to the wardroom for our standard breakfast – coffee and a cigarette. I jotted down a brief for my crew while Michael started his DD-175. He would be going up north for a couple of hours and then back home for some touch-and-go's.

We went our separate ways for the briefs; mine went smoothly and the following preflight went the same. We were out 20 minutes early and in our operating area by scheduled takeoff time. Michael had gotten off a few minutes behind us.

We had gone through a passive tracking scenario and were down at 200 feet practicing active sonobuoy patterns. The copilot called back over ICS and said that Center had called and passed the message that our "company" was requesting us to return to base as soon as possible. I called for a climb to 7000 feet and began calling the squadron on base frequency to verify the order to RTB. Sure enough, that's what they wanted.

On lineup for GCA final, the pilots called back and said it looked like there was a plane down on the left runway. (*Damn. I hope it's not one of ours.*) Shortly after touchdown we could see the tail section; it *was* one of ours! No one could see the aircraft number. The expected quiet set in; everyone running through the day's flight schedule in their head. We *had* to know who it was, for all the difference that would make.

The assistant maintenance officer met our aircraft. "I've got bad news, guys. Number 3 came in with the gear up about 45 minutes ago. All five are dead." "Number 3! That's Michael's plane!" "Yeah, that's right," he said,

"Come with me, David. The Skipper wants to see you."

The hangar and office spaces were in chaos. The Skipper wanted me to go with the XO to tell Janet. (*Oh, God, I hoped I'd never have to do this.*) I quickly changed – mind numb, shaking like a leaf. (*How could Michael accidentally bring a bird in with the gear up? He was too good for that!*) The XO and I got to Janet's a little after 1400. I had already made a quick call to Donna, told her I was all right, and told her the news. Ringing the bell at Janet's, the XO and I exchanged quick, worried glances. The door opened. "Hi, David. Hi, XO. (*She stared at the petrified look on my face.*) What's . . . wrong?" The XO spoke up, "Hello, Janet. Let's go in and sit down." "David, tell me what's going on!" I choked out, "Janet, there's been an accident. Michael's been killed." (*I hear the kids playing in the backyard – happy. They don't know, yet, that they no longer have a father.*)

I remember little of what was said or done for the next hour or so. I do remember it was horrible. Two men standing around watching Janet, looking like a wounded animal. We couldn't do a damn thing!

We had told her all we knew; the aircraft was coming in with No. 2 engine shut down, Michael in the right seat and his trainee in the left. They had been practicing engine-out work in the pattern for about half an hour. They communicated no problems with the aircraft; apparently the gear had been an oversight. The plane, still fairly heavy, had exploded just after touchdown.

The XO left the house to go see some other families. Janet, with her guard now down, really broke up. Her hurt, angry questions were fired so fast they left no room for answer. Answers wouldn't have helped anyhow. For all the curiosity about exactly what happened, we already knew the most important point – Michael was dead.

Their "little family" had now become a widow with two small children. Donna and I, all the friends, and the Navy could do a lot to help Janet, but not enough to undo what had happened. Too bad Michael and I never considered this last night.

Did all those daiquiris cause Michael to forget the gear? We had done it before and it never seemed to make a difference. Unfortunately, even when the investigation is done, we'll still never know for sure. It may be smart to conveniently leave out the "drinking" in my statement to the board. I'll talk to Donna and Janet about this later. After all, losing my wings won't bring Michael back. I don't think the best autopsy in the world will be able to pick up alcohol in what's left of Michael. Probably best to let this one go down as another unexplained, unintentional, fatal, gear-up landing. ◄

Slip sliding

CARRIER flight operations have always been one of the greatest shows on earth, and one of the most dangerous. I have the utmost respect for the yellow and blue shirts on our flight decks. The typical crew is competent, capable, and exceptionally professional. Their ability to spot and direct taxiing aircraft, about the flight and hangar decks of our ships, must be seen to be fully appreciated. However, even these men have their limits. Recognizing these limits, under the demands of all-weather, day and night carrier operations, is a challenge to leadership in all levels of supervision.

In the past few months, I have experienced some rather close calls that have indicated our flight deck crews, supervisors, and bridge personnel are not fully aware of the idiosyncrasies of the aircraft being taxied around. My discussion will be limited to the E-2C *Hawkeye*, normally a very surefooted beast.

Every day the flight deck is subjected to enormous abuse. Portions of the angled-deck are exposed to very heavy wear, by the dragging of the wire during rollout and retraction, each time an aircraft is trapped aboard. We also inadvertently dump fuel, oil, and hydraulic fluid, leave rubber deposits from aircraft and yellow gear tires, and spread water and soap from aircraft washing onto the deck. The buildup of these deposits makes for a slippery surface to say the least. Add rain or morning dew, and you have a surface slicker than greased owl *&$*%! Add some wind over the deck, and the stage is set for a potential accident.

The *Hawkeye* is a very versatile aircraft. It can taxi forward or backward under its own power. It can turn on a dime, and taxi with only one engine operating. Its wingfold system is somewhat unique. Because of the aircraft's rotodome, the wings are folded back and automatically latch to the outboard vertical stabilizers. This design presents a tremendously large "barn-door-like" profile to the relative wind, when being taxied crosswind. With this background in mind, let me relate several recent close calls that I have experienced on the flight deck.

• The deck was dry, with winds over the deck at 25 knots. The ship was in a starboard turn to the launch heading. Taxi out of the "Hummer Hole" was very slow, with some sliding being experienced. Taxiing forward, with the nose gear on the cat track, the aircraft lost directional control when the jet blast from five parked A-7 aircraft, combined with the crosswind, blew my E-2 towards the

away

By LCDR John Redden, USN
VAW-125

port catwalk. I added power to go faster and clear the A-7s, while locking the starboard brake and turning the nosewheel steering full right. When I cleared the last A-7, my nose was 45 degrees to the right, with the left mainmount about 10 feet from the deck edge. This was the first sliding incident that I had ever experienced. My pucker needle was definitely pegged to the hilt!

• The deck was wet with rain, and winds over the deck were 35 gusting to 45 knots. We were to be the last to launch, with a wide open flight deck for taxi. The trip to No. 2 cat was slow but uneventful. The first unusual happening was the airplane going "down" on the catapult for a faulty oil pressure transmitter. I say unusual because this was the first and only time I have "downed" the E-2C on the catapult. (Reliability in the E-2C community is something we take a lot of pride in.) Taxi back was slow and cautious again. On the way back, I met a *Prowler* that was late readying for launch. We passed wingfold to wingfold. Clear of him, the director turned me towards the No. 2 elevator, which, as luck would have it, was down on the hangar bay. A second *Prowler*, attached to a tow tractor, was being held just forward of elevator No. 2 for me to pass. I was about 30 feet short of the elevator, approaching it at an angle of approximately 30 degrees, when the director gave me a right turn to parallel the elevator. At the same time, the *Prowler* on cat 2 was put into tension and went to MRT (military rated thrust). His exhaust caught my "barn door" profile and rotated my *Hawkeye* rapidly to the left 120 degrees! I stopped 2 feet short of the tractor pulling *Prowler* No. 2. What stopped me was not full reverse thrust on my starboard engine and positive thrust on the port engine, but, rather, the launching of the *Prowler*. The tractor driver had ducked down as far as he could, but had not abandoned his tractor. An alert director set the tractor's parking brake and removed the driver until we were chocked. Number 2 elevator was raised, and my director tried to taxi me. I refused to move and waited for a tow to my parking spot. The "boss" informed me that the problem was caused by the EA-6B, and that it was now gone. So was my desire to taxi. The aircraft was finally shut down and towed to its parking spot with, I must add, some further slipping and sliding of the tractor.

• The deck was wet with dew, winds were 20 knots. I was in the farthest forward "Hummer Hole" on a two-plane launch. My "wingie" was the first to taxi. As soon as he released his parking brake to move forward, the aircraft started sliding sideways. The pilot recognized the problem immediately, accelerated forward, and made a skidding turn to the right. He got the aircraft under control, facing forward. If he had not accelerated, he would have hit the parked MB5 crash truck nearby. As luck would have it, there were no aircraft in the vicinity of cats 3 or 4. Having learned a lot by seeing his performance, I chose not to repeat it. I asked the "boss" for a tow forward. After a delay of about 5 minutes (while my request was debated), a tractor was finally produced. As soon as my aircraft was out of the "Hummer Hole," we (E-2 and tractor) slid sideways. Full reverse thrust, and setting the parking brake, finally stopped the slide. We then became disconnected. The tow bar was turned to the right and reconnected to the tractor. After being towed forward, I was released from the tractor and the rest of the launch sequence went without incident.

These incidents disclose my main contention. The *Hawkeye* (and other aircraft) simply cannot be depended upon to taxi safely on its own power, in adverse conditions. Adverse conditions are those associated with high winds and/or slick decks covered with POL, rain, or dew. It does not take much imagination to realize the consequences of dropping a *Hummer* into the catwalk or onto an elevator, or hitting something with that very large prop. Crunches in the past have already proven to be disastrous in material and personnel losses. The potential for shrapnel damage from a shattering prop flying about a crowded flight deck is too frightening to contemplate.

Continued

Although this article is primarily discussing E-2 operations on a carrier, most of the author's thoughts apply equally to all carrier-based aircraft. It is critical that aircraft operators and ship's company personnel have viable lines of communication through which they can discuss subjects such as this. – Ed.

I believe it is a mistake for a ship to rely on aircrews to salvage situations where loss of control is experienced. It is even a bigger mistake to rely on aircrews to point out adverse conditions and force them to ask for help from the "boss" in getting a tow, etc. Training and awareness is the key. The following are a few recommendations to make our job a safer one and decrease the pucker factor to acceptable limits:

- **Bridge.** When aircraft are being taxied about the deck prior to launch or after recoveries, keep the ship's turn rate down to what is absolutely necessary. Officers-of-the-Deck must be made more aware of what a hard starboard turn means to an aircraft taxiing. The deck slopes down to the port, meaning a *Hummer* coming out of the "hole" has a possible tail wind component and a downhill gradient to boot. It also means that a returning aircraft, being turned for a push back into its parking spot, makes the turn at one of the most slippery spots on the ship – downhill, at a gross weight that is much less than its launch weight. The opposite is true for other aircraft in different positions.

- **Tower and Supervisors.** You can see the conditions on the deck and you know what the winds are. The sliding problems that I have described are real. Crunches are bad for a ship, but they are worse for the squadrons involved. The sick feeling that a pilot experiences when out of control, especially in the *Hawkeye* with no ejection seats and five people aboard, has only to be experienced once to make you a believer. Plan your prelaunch and postrecovery aircraft movements to minimize taxi operations when the deck is slick or the winds are high. If the conditions warrant, move the *Hummer* (and others) with a tow tractor. Minimize the amount of taxiing for all aircraft at the end of a recovery. The time saved by having aircraft taxi is not practical from an energy savings viewpoint. It also exposes aircraft to further hazards when their traction is reduced from lowered gross weights, and this usually occurs with the ship in a turn.

- **Flight Deck Directors.** Your job is one of the most difficult and demanding aboard ship. The conditions under which you operate are packed with danger. However, you can show more respect or consideration for a pilot's judgment when he stops and refuses to move due to conditions as he perceives them. It is he who first "feels" the aircraft start a slide. Don't get upset with a pilot who taxies too slow for you. The accident he saves may be yours, as well as his own.

We are all trying to do our best. The true professional knows his limits and doesn't exceed them, nor does he demand that others exceed theirs.

WHAT IS YOUR WAKE TURBULENCE IQ?

The following questionnaire is reprinted by permission of the Lockheed-California Company from their publication CALAC FLIGHT OPERATIONS DIGEST, Issue No. 1, Spring 1978.

Listed below are 10 multiple-choice questions which reflect the latest findings by the Federal Aviation Administration (FAA) and the National Aeronautics Space Administration (NASA) concerning wake turbulence. Check your answers against those at the end of the test. Credit yourself with 15 points per correct answer, and if you have a score of 150, you have a high wake turbulence IQ. If your score is less than 135, a little research may be in order.

1. When departing behind a large cargo aircraft, which of the following types of wind would result in the most persistent runway turbulence:

a) Calm winds
b) Direct headwinds
c) 5-knot crosswind component
d) 10-knot crosswind component

2. During a calm-wind condition, a jet aircraft departs on Runway 36L. When should an aviator expect the turbulence to reach 36R if the distance between the two runways is 1000 feet?

a) ½ minute
b) 1 minute
c) 1½ minutes
d) 2 minutes

3. When does a departing aircraft start producing wingtip vortices?

a) At the start of the takeoff roll
b) At an approx. speed of 60 knots
c) At liftoff
d) When the nose is first rotated

4. What conditions of airspeed, weight, and configuration would generate the greatest amount of wake turbulence?

	Airspeed	Weight	Configuration
a)	Slow	Heavy	Flaps down
b)	Slow	Heavy	Clean
c)	Fast	Heavy	Flaps down
d)	Fast	Heavy	Clean

5. At what rate, and to what altitude will the vortices generated by an aircraft descend?

a) 500 fpm for 900 feet
b) 500 fpm for 500 feet
c) 1000 fpm for 2000 feet
d) 1000 fpm to ground level

6. The major danger associated with the high exhaust velocities of large jet aircraft would be present during which type of operation?

a) Landing
b) Takeoff
c) All flight operations
d) Ground operations

7. When taking off behind a departing jet aircraft, a good technique would be to:

a) Lift off prior to the point of rotation of the jet and stay above or away from its flightpath.
b) Delay liftoff as long as possible to create excessive airspeed for penetration of the vortices.
c) Climb to 500 feet, level off, and turn so as to cross the vortex path at a 90-degree angle.
d) Adjust the flightpath so as to penetrate the vortex core 500 feet below the generating aircraft.

8. Generated vortex cores range in diameter from 25 to 50 feet. How are the two vortices of an aircraft affected by time?

a) The cores rapidly expand until they overlap and dissipate.
b) They stay very close together with little expansion until dissipation.
c) They gradually reduce in size until dissipation.
d) Depending on the atmospheric conditions, they sometimes increase or decrease in size.

9. Which of the following tangential velocities would approximate those created by the C-5A or Boeing 747?

a) 500 fpm
b) 5000 fpm
c) 9000 fpm
d) 15,000 fpm

10. Which of the following encounters with wake turbulence would probably result in the greatest loss of control of the penetrating aircraft?

a) Crossing the wake at a 90-degree angle.
b) Climbing through the wake at a 90-degree angle.
c) Climbing through the wake on the same heading as the generating aircraft.
d) Flights 1000 feet below the generating aircraft.

Although the above article was taken from a commercial source, wake turbulence doesn't discriminate between commercial, general, or military aircraft. Use caution! –Ed.

ANSWERS TO THE ABOVE QUESTIONS

1.c, 2.d, 3.d, 4.b, 5.a, 6.d, 7.a, 8.b, 9.c, 10.c

Are you prepared

to ditch?

By LCDR John Wells
VP-10

WE were deeply saddened by the loss of more good shipmates, and alarmed by the loss of yet another P-3 aircraft. However, there was probably a quiet, collective sigh of relief in the Patrol community because the big question is at last answered. Yes, a P-3 crew can survive an intentional ditching in the open sea – in the worst of conditions.

I believe a key point of their commendable performance was the ample time for preparation, both mental and physical. They had rehearsed their procedures and donned antiexposure suits prior to impact. "Wait a minute," cries the corporate memory, "Have you forgotten the P-3 ditch in the Philippines a few years back?" "It was unintentional, the crew had little time to prepare, and the survivability was greater," I reply. Point well taken, corporate memory; however, let us not forget that water/weather conditions at point of water entry have a great impact on crew survivability. In other words, who can refute that a nice day in Subic Bay would be better for ditching than a really nasty day over the open ocean just south of Alaska, in late fall. In fact, water conditions probably weigh much heavier in success than time for preparation. The point of this hypothetical conversation and the whole point of this article is that now is the time for ditching preparation. How well prepared are you?

As a pilot with multiple tours in squadrons and the RAG, and a lot of extra rides with P-3 drivers of other squadrons, I feel reasonably well qualified to say I have seen quite a bit. The part that I have seen that never ceases to amaze me is the crew brief on the aircraft prior to flight. That is the time, the key point in ditch survivability, that the crew can review their procedures and mentally prepare, to some extent physically prepare, for the worst. We pray it will never come, but it has and it could again.

You put a full NATOPS-qualified combat aircrew in a P-3, give them an operational mission to perform, and you have a team of well-prepared, thoroughly briefed professionals ready to knock 'em dead. They will have briefed everything from who observes the engine starts to who passes out the Charms, should they have to paddle home in a MK-7 liferaft. However, put the same group of can-do killers on an Admin/Cross-Country/FAM flight and you're going to hear briefs like: "Aft observer, you launch No. 2, the off duty engineer will launch No. 1, and we'll all grab something on the way out." Grab what? – A *PLAYBOY* and the peanut butter? Which raft do they get in? All pile in one until it's full? The leftovers try for No. 2? Pilots, it's your responsibility to give a good ditch brief, on every flight; crewmembers, it's your responsibility to speak up if you don't understand your duties or hear an adequate brief.

While I'm on the soapbox, I'll just take a minute to air another pet peeve. With far too many pilots, it's, "Gear up, Condition IV" (aircraft integrity checks for you other types). So now we have crewmembers moving about the aircraft during one of the most critical portions of the flight, slow speed, low altitude. What happens to those crewmembers if that should be the exact time the aircraft picked for ditching? Can they get strapped in again prior to water impact? My own minimum for setting Condition IV after takeoff is passing through 1000 feet, and then only if conditions external to the aircraft appear suitable.

Let's go back. The P-3A/B NATOPS is the bible for superlative guidance on ditching, if you have a full operational crew onboard. What about eight crewmembers, or five? Who goes where and takes what? I believe that too many of our pilots are either too lazy or they don't think on their feet fast enough to decide how eight crewmembers will fit into two MK-7 liferafts, and which of the available survival equipment should go in each. I fall into the latter category. The NATOPS can't make all my important decisions for me, so I developed a P-3A/B ditching assignment guide. Now I can stand up at the plane-side brief and confidently make cute little pictures, in grease pencil, beside the name on the Ditching Bill. I know that I am not forgetting an important item or being unprofessional by saying "Everyone grab something on the way out." I am confident that I am taking the time to prepare that crew for ditching, on every flight.

None of us believe that we'll ever have to ditch, otherwise there would be fewer of us flying. After all, an unexpected swim in the North Atlantic in December is not the object of our professional motivation to fly, but it is the object of our survival training and our preparation for every flight, no matter how routine!

In the chute, again

AS an F-4 Radar Intercept Officer, I had the occasion to eject twice. The lessons I learned from the first made the second considerably less traumatic (relatively speaking). I am remiss in not having shared these lessons sooner. I have provided briefs on occasion for various squadrons, and have given a lot of thought to the actions taken during emergency situations. Rather than give a blow-by-blow narrative, I will attempt to cover the specific lessons that I learned, the mistakes as well as the good moves, in an effort to provide information that can be evaluated and used in establishing your own plan of action.

I feel that having a plan of action, thought out in advance, is the only way to gain an edge on a survival situation. Three phases come to mind in an ejection situation: prior to ejection, in the chute, and in the water

By LT Rick Mercker
FACSFAC VACAPES

or on land. Since my experience is limited to over water, I'll stick primarily with that phase.

Know your limitations. By that I mean, decide now on limits at which point further efforts are going to place you on edge, or out of the envelope. A lot of Naval aviators have died having committed themselves to a low altitude or an edge of the ejection envelope.

Airspeed is a key factor in an ejection situation. My first experience was at 300 knots, 11,000 feet. I was unprepared and badly out of position. Although no serious or permanent injury was sustained, I was considerably worse for wear at opening shock. My helmet was almost completely blown off, despite my mask being on and chinstrap fastened. The seat pan was completely ripped off my torso harness. After a brief struggle with my helmet and mask, I began to comprehend my situation. I immediately inflated my LPA and pulled out my PRC-90 and made several incomprehensible calls on Guard. I hoped that my wingman would be along soon. I figured the helo would be 20-25 minutes en route to the scene.

I had given considerable thought to water entry and, as a result, about 15 feet above the water I dropped my helmet into the water for a visual reference. At about 5 feet above I released my Koch fittings. Water entry was uneventful and I bobbed to the surface without even getting my hair wet.

For the next 50 minutes I spun my wheels and made a number of classic mistakes that under other circumstances may have proved fatal.

As aircraft circled overhead I expended all my pencil flares. They are worthless in the daylight. When the helo arrived on scene I torched off a smoke flare, thinking they were facing my direction. I had discarded my gloves, and dropped the smoke for fear of burning my hand. I know now that helos need to hover with their noses into the wind, so they couldn't have seen me in this case. After flailing around for almost an hour, with the sun sinking in the west, I retrieved my PRC-90, beat on it, and it started working. A quick call on Guard, that I was switching to 282.8, and the whole world turned around and headed my way.

The second ejection was the result of a catastrophic fire that eventually rendered our *Phantom* uncontrollable. Since we were 80 miles from the beach, and the aircraft was still flying, we stuck with it and worked on the procedures to get it home. We immediately prepared for ejection, removing our kneeboards and stowing loose gear. Command ejection was selected in the rear cockpit and we slowed to 280 knots and descended to 14,000 feet.

Two A-7s joined and looked us over. At 20 miles from the field, the fire and overheat lights went out and we began setting up for the runway. We descended to 10,000 feet for a controllability check and lowered the landing gear. We were single engine with a failed utility system, and subsequent investigation revealed that the flight controls to the left wing had burned up. At 240 knots the aircraft began a slow left roll and, despite attempts to unload and pick up airspeed, the roll continued.

At 60 degrees left wing down, my "stick" informed me that he couldn't get the wing back up and asked me if I thought we should get out. I replied with an affirmative (expletive deleted) and initiated command ejection using the lower handle. The seat worked as advertised. I removed my mask, inflated my LPA, and pulled out my radio. At about 1000 feet I deployed my raft and, when it splashed in the water, I waited a second and again dropped out of my chute about 5 feet above the water.

Surprisingly, in both cases the pilots forgot to inflate their LPAs. In the first, the pilot was within seconds of drowning from exhaustion. The second had little trouble since his raft was deployed. It would have been a shame to have handled that fire and then ended up drowning.

I feel the LPA has taken a bum rap in a lot of the articles I've read. It is your best ticket in a water survival situation. Although I cleared my chutes in both cases, the chutes floated nearby for over 20 minutes. I feel that the preoccupation with struggling with the chute has caused aviators to forget to inflate their LPAs.

Know what your survival gear will do, as well as where it is. You might consider keeping your gloves on. I had no problem with them the second time, and wished I had kept them the first time. Take good care of the PRC-90 and don't give up on it. A dye marker is a good item to have in your vest in case you find yourself without a seat pan. Inflate your LPA ASAP. It will keep you afloat and allow you to cope with any entanglement problem.

APPROACH, NOV '78, talks about the auto inflator for the LPA. It should help eliminate a lot of the problems. I'm not as excited about the water-actuated Koch fittings. A dependable LPA will significantly reduce the number of drowning problems.

Each Naval aviator has to make his or her own best decision when an emergency arises. A little forethought might well save your life. If only one Navy flier's life is saved by the information in this article, it will have been worthwhile. ◄

BRAVO ZULU

LT Dick Graham, USN

Left to right: LT Jim McArthur, LT Dick Graham, and LTJG Rudy Grom.

"Frozen at the controls!" A truer phrase couldn't be more appropriate for this BZ; shades of scenes from "The Bridges of To-Ko-Ri" or "God Is My Copilot."

LT Dick Graham of VFP-63 was climbing his RF-8G through FL230 in IMC, following a routine photo-recon hop from the USS CONSTELLATION. Suddenly his canopy separated from the aircraft! Immediately lowering his seat and visor, LT Graham notified his fighter-escort F-14 crew, LT Jim McArthur (pilot) and LTJG Rudy Grom (RIO), of his plight. Clearance was requested and immediately granted to an MEA of 16,000 feet over the mountains, still IMC.

For the next 120 nm, LT Graham was required to gather all his aeronautical skills and physiological abilities in order to reach the nearest suitable airfield. Flying wing on LT McArthur and LTJG Grom, LT Graham experienced freezing rain and turbulence that obscured his instruments and restricted his movement in the "open" cockpit. Despite the onset of cramps, shock, impaired vision, and complete numbness in his extremities, he was able to maintain wing all the way to the "ball" at his destination.

The *Photo-Crusader*, with LT Graham literally frozen at the controls, came to rest in the MOREST and had to be shut down by the crash crew, as he was immobilized due to his physiological state. He was assisted from the cockpit and, after a reasonable thawing-out period, returned to full duty.

Through this professional display of airmanship, flightcrew, and controller coordination, LT Graham saved a valuable aircraft and possibly lives in the air and on the ground. A hearty well done to all!

The dancing Harrier

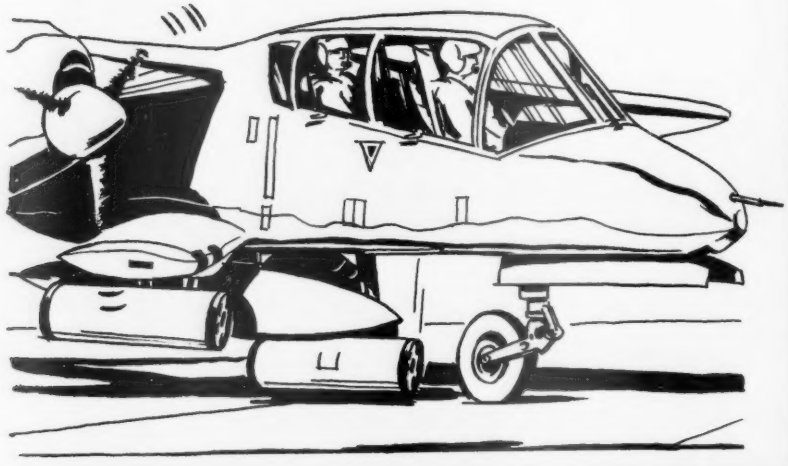
THE AV-8A terminated its basic tactics hop by attempting a VTO (vertical takeoff) after successfully completing a decelerated transition, hover, and VL (vertical landing). The pilot did not see any noticeable abnormalities prior to the attempted VTO. The *Harrier* was positioned into the wind, where engine acceleration and duct pressure checks were conducted – all OK. The nozzles were selected to the hover stop position, and the pilot selected a visual ground reference for transition to forward flight. No apparent problems so far. Shortly thereafter, the dance of the *Harrier* commenced!

The pilot noticed a definite nosedown pitch, accompanied by a roll to the starboard, as the aircraft started to lift from the pad. This attitude change was countered by increased amounts of left and back stick, but no appreciable effects were noticed, so the pilot reduced the throttle to idle. By this time, the pitot tube, nose cone, nosewheel, and starboard outrigger tire were in contact with the landing surface. Simultaneously, a slight forward and right drift had developed. With the throttle retarded, the AV-8 settled back to rest on all landing gear. Relieved that the dance was over, the pilot secured the engine and exited the aircraft without further ado.

The *Harrier* received Echo damage as a result of this "undemanded roll" during a VTO. Fortunately, it was limited to the pitot tube, nose cone area, and outrigger assembly. However, the dollar and time cost value to fix such sophisticated aircraft continues to grow. Nearly 12 grand and *4 days* were invested in getting this *Harrier* back into flight status.

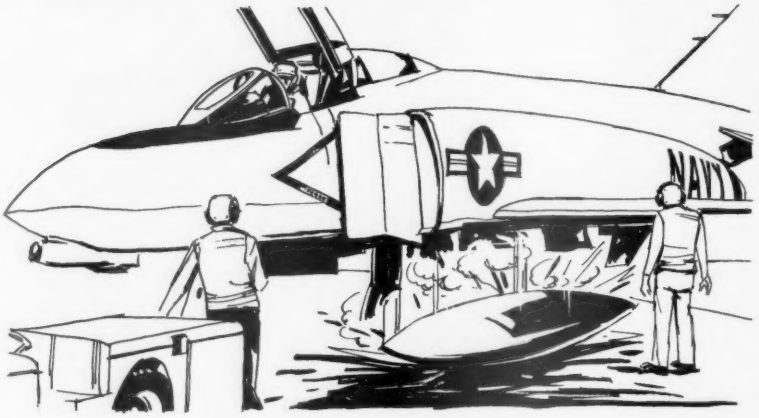
The exact cause of this incident was not conclusively determined. The most probable cause was attributed to pilot technique, in that the pilot may not have applied the requisite corrective action, with the rapidity and degree necessary, to preclude excessive pitch/roll change. This determination evolved after extensive debriefings with the pilot and detailed troubleshooting of the AV-8's aircraft systems; a truly professional approach in an attempt to prevent future incidents of this nature.

While this pilot was aware of the possible instability due to ground effect, he had not previously found a need to employ coarse control inputs during VTO liftoff. Because of this, he may not have fully appreciated the possible need for immediate, full, opposite control input to arrest any attitude change that may be encountered. Now, for one, he knows what "undemanded roll" is all about, and hopefully the message will reach the entire *Harrier* community in time to prevent further occurrences of this nature, or worse. ◄



They blew it!

WHEN forced to do too much with too little, in order to get a job done rapidly, it is time to reflect on how much time will be lost if you cause a mishap.



• Following an ordnance hop in an OV-10, the PUI (pilot under instruction) taxied into the red-line area to have his LAU-68As (2.75 rocket pods) dearmed. While awaiting the dearming crew, the PUI attempted to set the parking brake. In haste, he mistakenly pulled the manual jettison handle for the external stores, which is located next to the parking brake handle. Once the PUI pulled the handle halfway out, he remembered what he was doing was wrong and let go. Too late! The rocket pod on station No. 1 was ejected to the concrete below. The dearming crew arrived in time to dearm the pod on station No. 5 and then pick up the ejected pod from the concrete. The podless *Bronco* then returned to the line without further incident.

• While performing jettison checks on an F-4 aboard ship, the *Phantom's* centerline tank was blown off because applicable MRC decks were not used. (These required the tank to be safety pinned and explosive cartridges removed.) Those who performed the work, as well as the supervisors, were found to be at fault. Three men were required to do the job; only two were available, but they were directed to move ahead anyway. This crew was completing its third aircraft of the evening – maintenance actions that would have taken a full crew 18 hours to complete correctly and safely. Had they been able to complete the job successfully, they may have received the WAG (what-a-guy) award of the month. However, this was not the case. It was obvious that this workload was not completed properly because of being directed to attempt an impossible task.

• During the replacement of a pneumatic brake line on a *Photo-Phantom*, the hydraulic man requested that an IMA photo-technician pull the *emergency brake* handle in the cockpit. The *one* on the right side that was painted with *yellow* and *black* stripes. Not being familiar with this foreign system, but not to be outdone by demonstrating a "can't hack it" attitude, the pseudoinstant "hydraulic man" went to work. First, he pulled the pin on the guillotine firing handle (it was obviously obstructing progress). Second, he pulled the guillotine handle itself, thus firing the guillotine – not the emergency brake handle as planned! Much damage to the Martin-Baker seat/parachute mechanisms resulted, but fortunately no one was injured.

These cases of the hasty, unqualified, undermanned, and unsupervised continue to plague naval aviation's safety progress in reducing not only its air accident rate, but its ground accident rate as well. The OV-10 incident was caused by hasty and improper pilot procedures. The F-4's was too much expected from too little, with improper supervisory directives. The RF-4 incident was a classic case of unqualified/inadequate personnel trying to get the job done. All were cases of trying to find shortcuts to safety. No matter how we try, there are no proven ways to do it better than the established, practiced, and sane way.

In these days, when organizations are often overtaxed and undermanned, there should always be that factor around that can and does prevent many, many mishaps – common sense. It could have prevented all of the above and many more like them. The next time that you're confronted with the impossible, improbable, or not-too-sure syndrome, let common sense, if nothing else is available, take over. It works more often than not!

Letters

Our Apologies

NAS Norfolk – In the MAR '79 APPROACH on pg. 13, the article "Attention on Deck!" contains a very obvious error. The second paragraph, third sentence, refers to a brake rider of an F-4 as being AMH3 Russel E. Kelley, Jr. The same paragraph, fourth sentence, refers to the same person as Airman Kelley. I know that AMH3 Kelley does not like being referred to as Airman Kelley. In the third paragraph, second sentence, you refer to PO3 Kelley as a PO.

I feel sure that this was a mistake made when setting up the press.

AE1 Donald E. Nash
HC-6

• It was actually a mistake made by an oversight in editing. Our sincerest apologies to AMH3 Kelley and our "eagle-eyed" readers.

Re: "20/20 Sleuth"

Seymour Johnson AFB – In the APR '79 issue of APPROACH, the article "20/20 Sleuth" caught our immediate attention. We fly F-4Es in the 3-squadron wing here at Seymour Johnson AFB. We were wondering if your office had a binocular camera photo of the cockpit of an F-4. It would provide our crews, and the civilian pilots we talk to on our mid-air collision avoidance program, with valuable info on the visibility limitations of the aircraft we fly. Would it be possible to obtain strip-film photos of the front and rear cockpits of an F-4? If you don't have these available, could you provide our office with information as to how we could obtain them?

We enjoy reading your excellent publication each month and the info is widely disseminated throughout the 4TFW.

Capt S. M. "Mike" Shub, USAF
4th Tactical Fighter Wing

• We regret that we have no binocular photos available other than the originals used with the article. We suggest you contact the FAA/NAFEC Public Affairs Office at the following address: Mr. Michael Benson, Public Affairs Office, FAA/National Aviation Facilities Experimental Center, Atlantic City, New Jersey. We don't believe they have any binocular views of military aircraft cockpits, but they may have a few or may be willing to take some for your organization.

FOD Tape

USAFE – I found the article, "The Law of Irretrievability," by LT J. C. Watson on pg. 21 of the FEB '79 APPROACH magazine very interesting. The FOD tape pictured with the article is of particular interest. I would be interested in obtaining some of the tape for incorporation into our FOD Program. Since the Air Force does not have any of the tape on hand here at Alconbury, I would like to find out how to procure it. If you can give me some guidance regarding the FOD reflective tape I would really appreciate it.

Capt Charles W. Soderquist, USAF
Wing Flight Safety Officer

• We've had numerous requests from Navy, Air Force, and commercial organizations for this tape. The stock numbers for the Navy and Air Force are as follows: Navy – 1RM 9390-00-122-4555-SX; Air Force – 9390-00-122-4555. Commercial organizations should contact the 3M Co., Visual Products Division, St. Paul, MN 55101. The tape is manufactured in 3/8-inch by 12-inch strips and costs between 10-20 cents per strip, depending on quantity.

Liked That Profile!

MCAS Cherry Point – It was with a great deal of pleasure that I noted in the MAR '79 APPROACH your airfield profile on MCAS Cherry Point.

That feature, like everything else appearing in APPROACH, is of significant benefit to all naval aviation personnel and, also characteristic of APPROACH, was well written and accurate.

We at Cherry Point are proud of our facility and are continually striving to improve our capability to support the Fleet. Thanks for bringing us to the attention of aircrews around the world.

At the same time, I extend my personal invitation for your staff to look at New River, North Carolina and Beaufort, South Carolina as sources for future profiles.

BGen K. A. Smith, USMC

• Thank you for your compliments and your invitation. APPROACH writer Joe Homer wrote the profile on MCAS Cherry Point, but we also encourage submissions of airfield profiles from any activity. In fact,

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

we recently received an excellent profile on MCAS Beaufort. We request that all submitted profiles be endorsed by the local air operations officer and base commanding officer to ensure accuracy. They should be informational, include photographs, and abstain from puffery. Thank you again, General, for your letter.

Visors Down

FPO, Anywhere – I've seen lots of pilots on the flight deck, usually after recovery, walk from their aircraft with the face shield up. I think it would be a great deal safer if they put them down for eye protection. There is always something blowing around on the roof, and I'd hate to see any of them lose their wings because they only have one good eye.

AE3 Daniel J. Kiser
VS-31 AE Shop Safety PO

● **Anyone on carrier flight decks should use good, common sense and protect those eyeballs. We assume everyone does have eye protection available. CAGs, how about reinforcing this issue?**

Don't Forget the Helos

FPO, San Francisco – I heartily agree with LT Steve Kunkle's article on flight deck hazards, Pg. 23 of MAR '79 APPROACH. This is a subject that needs to be addressed frequently.

I would like to expand on one of his statements. He states, "Don't assume the recovery is complete until the boss says so on the 5MC. Then you have to watch out for the helos." I understand that this is the order of things, but I submit that the recovery should not be complete until the helos have landed.

As a QAR for a helo squadron, I have seen the LSE have to contend with all sorts of people, aviation and nonaviation, fouling the flight deck as soon as the air boss says, "Recovery complete."

The helicopter is a wonderful aircraft for ASW, SAR, and MedEvacs, but it is still an aircraft and, as such, it is subject to the same problems as fixed-wing aircraft (i.e. – maintenance error, pilot error, and material failure) and has the same hazards (i.e. – rotor wash, noise, and spinning rotors).

Gentlemen, please wait until the helos have landed to run across the deck, and keep your deck gear on until they have shut down. It's for your sake as well as theirs.

AMS2 S. D. Martin
HS-8 QAR

RADM Fredrick F. Palmer, Chief of Naval Reserve, unveiled a painting dedicated to the naval aviators from New Mexico who have received the Navy Cross. Opposite ADM Palmer are LCDR Harry M. Davidson, Executive Officer of NAS North Island Det 295, and CAPT Lynn Bauer, Commanding Officer of Naval Reserve Weapons Systems Unit 0995.

Compliments to Mr. Rader

Albuquerque – When I opened your package and saw that you had sent the original artwork of the January cover, I was overwhelmed.

Rather than just framing the cover and hanging it, I decided it would be a fitting memorial to New Mexico's naval aviators who had been honored by the Navy Cross.

I took the liberty of naming the painting "Climbout." I hope you approve. Please relay my compliments to Mr. Rader for his excellent artwork.

Before you publish this, perhaps you could consider that other commands may wish to have your cover artwork. Perhaps you should limit requests to 90 days after publication of a cover. The theme of the cover should have some connection to the command, its aircraft, or the purpose for which they intend to use the artwork.

I hope you approve of the liberties I have taken with your fine work of art. Our command is proud to display it, and to honor New Mexico's Navy Cross winners.

Thank you again.

LCDR H. M. Davidson
Executive Officer
NAS NORIS Det 295
Kirtland AFB

● **APPROACH will occasionally send the original art used for a cover to a command with a special use for the work. No reproductions of the original are made because of cost and staffing limitations, so it's a "one shot" deal. Artwork appearing inside the magazine is never given out because of potential reuse.**

RADM Fredrick F. Palmer, the Chief of Naval Reserve, unveiled in Albuquerque an aviation painting entitled "Climbout." The painting is a memorial to New Mexico's naval aviators who have received the Navy Cross.

The painting, a striking work in greys, white, and black, depicts a Boeing F3B-1 fighter as it climbs out after a takeoff from the flight deck of the USS LANGLEY, CV-1, the Navy's first aircraft carrier. In 1923, the aircraft, the pilots, the ships, and the equipment were being developed and refined to create the then new and revolutionary concept of aircraft as part of naval weaponry.

The painting, by APPROACH staff artist Blake Rader, appeared as the cover of the JAN '79 issue of the magazine. It will now be displayed on the quarterdeck of the Naval Air Station North Island Detachment 295. This Naval Air Reserve Unit now occupies the former Kirtland Air Force Base West Theater building.

"Climbout" is dedicated to those naval aviators from New Mexico who have earned the Navy's highest award, the Navy Cross.

When at first you don't succeed...

By LT Ted Bybel, USN

SOMETIMES, in the course of operational flying, aircraft problems occur which dictate "downing" a sorely needed airplane which then defies the best efforts of maintenance support and flightcrew personnel to return it to an "up" status. The problem is further compounded when the discrepancy occurs while the crew is on a single-plane detachment at a remote deployment site. This was the situation facing LT Jim Sinz, LT Phil Souza, and their crew from the VP-26 special projects detachment.

The problem first occurred while returning from an operational mission, when continuous, moderate, low-frequency vibrations were felt in the sonobuoy chute area. The vibrations were of sufficient magnitude to make walking in the vicinity of the sono chutes quite difficult. The vibration extended from the sono chute area to a point forward of the sono storage rack, along the starboard side of the aircraft.

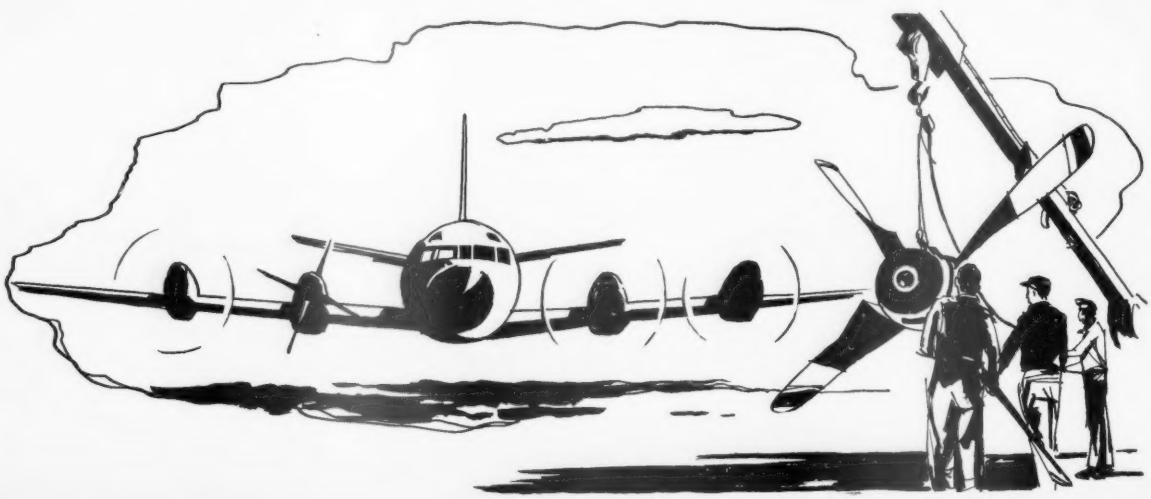
After landing, maintenance troubleshooting uncovered no discrepancies. However, due to the low-frequency nature of the vibrations, an airframe problem was suspected. The real detective work by the special projects men began. A checkflight was then conducted to further investigate the problem, since no clues were uncovered on the ground. The checkflight established that a certain nose attitude produced the vibrations. Upon landing, the aircraft was again thoroughly checked, with close attention to the flight controls. The starboard flap was found to be slightly out of rig. This discrepancy was corrected.

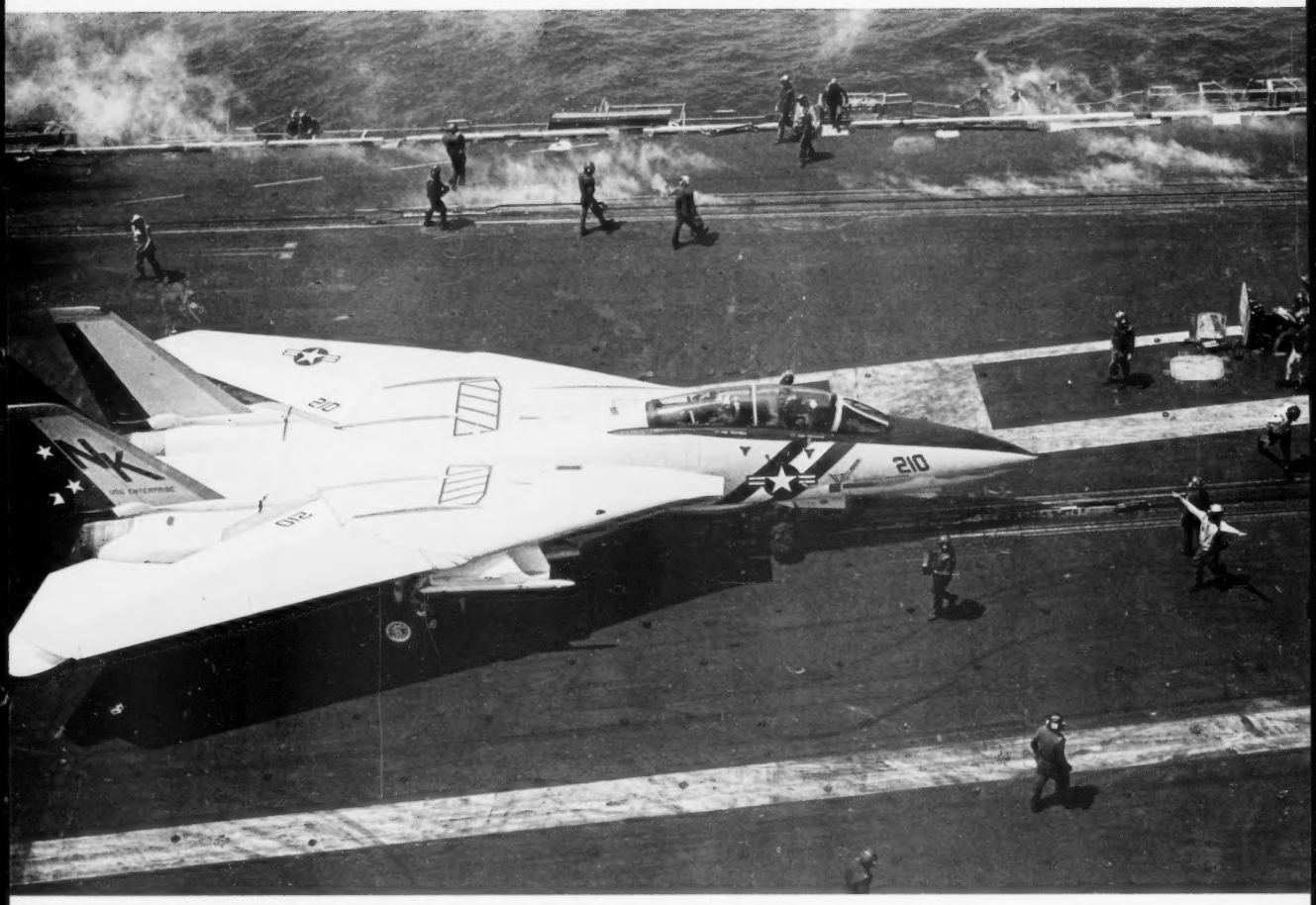
Another maintenance checkflight was scheduled and flown with no vibrations noted until returning to base, when the aircraft's nose-low attitude, coupled with increased airspeed during descent, caused the vibrations to recur. After landing, the aircraft was again thoroughly checked for a possible cause but, again, no discrepancies were found.

Once again, a flight check was flown to further analyze the problem in every conceivable flight regime, including different engine loiter configurations. The mysterious vibrations ceased when No. 3 engine was shut down. The aircraft returned to base, where postflight inspection revealed an *imbalanced propeller*. The prop was changed, along with all four engine mounting bolts as a precautionary measure.

A final checkflight was flown with no further vibrations. The engine mounting bolts were subsequently magnafluxed, and one was found to be cracked. Since both the mounting bolts and the propeller were changed at the same time, it cannot be determined which fix corrected the discrepancy. However, it is suspected that an out-of-balance propeller caused the vibrations, which resulted in stress, thereby cracking the mounting bolt.

Persistence, on the part of the flightcrew and VP-23's maintenance personnel, was required to unravel this mystery. Well done to all. A real team effort. ◄





AVOID THE RUSH!

KNOW FLIGHT DECK PROCEDURES.

Idea contributed by AMS1 Arthur L. Dapp, USN

TARGET ZERO

PICK UP ON IT!